

SHEET	DESCRIPTION	ISSUED
EO.1	ELECTRICAL LEGEND, GENERAL NOTES AND SPECIFICATIONS	Yes
E1.0	ELECTRICAL RISERS	Yes

(APPLIES TO ALL ELECTRICAL SHEETS)			
A	AMPERES	KW	KILOWATT
A/C	AIR CONDITIONING	LTG	LIGHTING
AC	ALTERNATING CURRENT	MCM	THOUSANDS OF CIRCULAR MILS
AFB	ABOVE FINISHED FLOOR	MCU	MASTER CONTROL UNIT
AFG	ABOVE FINISHED GRADE	MCP	MOTOR CIRCUIT PROTECTION
AHU	AIR HANDLING UNIT	MH	METAL HALIDE
ATS	AUTOMATIC TRANSFER SWITCH	N	NEUTRAL
AWG	AMERICAN WIRE GAUGE	NA	NOT APPLICABLE
C	CONDUIT	NF	NON-FUSED
CLF	COMPACT FLUORESCENT LAMP	NEC	NATIONAL ELECTRICAL CODE
CH	COUNTER HEIGHT	NIC	NOT IN CONTRACT
CONC	CONCRETE	NL	NIGHT LIGHT
COND	CONDUIT	NEMA	NATIONAL ELECTRICAL
CU	COPPER		MANUFACTURERS ASSOCIATION
DISC	DISCONNECT	NFPA	NATIONAL FIRE PROTECTION
ECB	ENCLOSED CIRCUIT BREAKER		ASSOCIATION
ELEC	ELECTRICAL	O.C.	ON CENTER
EM	EMERGENCY	O.U.C.	ORLANDO UTILITIES COMMISSION
EMS	ENERGY MANAGEMENT SYSTEM	P	POLE
EMT	ELECTRICAL METALLIC TUBING	PBL	PANELBOARD
EF	EXHAUST FAN	PVC	POLYVINYL CHLORIDE
EW	ELECTRIC WATER COOLER	RM	ROOM
EX	EXISTING	RCS	RIGID GALVANIZED STEEL
FA	FIRE ALARM	SPC	SPECIFICATION
FACP	FIRE ALARM CONTROL PANEL	SS	STAINLESS STEEL
G	GROUND	TP	TYPICAL
GFI	GROUND FAULT INTERRUPTER	U.G.	UNDERGROUND
GND	GROUND	UON	UNLESS OTHERWISE NOTED
GRC	GALVANIZED RIGID CONDUIT	V	VOLTS
HVAC	HEATING, VENTILATING AND AIR CONDITIONING	VAV	VARIABLE AIR VOLUME
H.J.D.	HIGH INTENSITY DISCHARGE	VFD	VARIABLE FREQUENCY DRIVE
J	JUNCTION	W	WIRE
KAIC	(THOUSAND) AMPERE INTERRUPTING CAPACITY	WP	WEATHERPROOF
KVA	KILOVOLT-AMPERES		

(APPLIES TO ALL ELECTRICAL DRAWINGS.)

POWER

GENERAL:

THE INSTALLATION SHALL COMPLY WITH ALL LOCAL LAWS AND ORDINANCES APPLICABLE TO ELECTRICAL INSTALLATIONS, AND WITH THE REGULATIONS OF THE NFPA WHERE SUCH REGULATIONS DO NOT CONFLICT WITH THOSE LAWS. OBTAIN ALL PERMITS REQUIRED.

MANUFACTURERS DRAWINGS AND DATA:

SUBMIT TO THE ENGINEER FOR APPROVAL FIVE (5) COPIES OF THE COMPLETE LIST OF ALL ELECTRICAL MATERIALS WHICH ARE PROPOSED TO BE FURNISHED FOR THIS PROJECT. AS A MINIMUM THE SUBMITTAL SHALL INCLUDE PANELBOARDS, A.I.C. OF BREAKERS INSTALLED, AND LIGHT FIXTURES.

STANDARD OF MATERIALS AND WORKMANSHIP:

ALL MATERIALS, EQUIPMENT AND APPARATUS COVERED BY THIS SPECIFICATION SHALL BE NEW, OF CURRENT MANUFACTURE AND SHALL BEAT THE SEAL OF APPROVAL OF THE UNDERWRITERS LABORATORIES. ALL WORK SHALL BE EXECUTED IN A WORKMANLIKE MANNER AND SHALL PRESENT A NEAT AND MECHANICAL APPEARANCE WHEN COMPLETED.

STORAGE OF MATERIALS:

THE CONTRACTOR SHALL PROVIDE SUITABLE STORAGE FACILITIES FOR ALL MATERIAL FURNISHED BY HIM UNDER THIS CONTRACT. ALL ITEMS TO BE INSTALLED MUST BE FREE OF RUST AND DIRT.

FIREPROOFING:

CONDUIT AND BOXES PASSING THROUGH OR INSTALLED WITHIN FIRE WALLS AND SMOKE WALLS SHALL BE INSTALLED SO AS TO MAINTAIN THE INTEGRITY OF THE WALL THROUGH WHICH IT PASSES. BOXES TO BE INSTALLED WITH 1/8" OF WALL SURFACE.

TESTING:

AT THE COMPLETION OF THE WORK, A THOROUGH TEST SHALL BE MADE IN THE PRESENCE OF THE ENGINEER OR HIS REPRESENTATIVE, AND THE ENTIRE SYSTEM SHALL BE SHOWN TO BE IN PERFECT WORKING CONDITION AS INTENDED BY THESE SPECIFICATIONS.

WARRANTY:

THE CONTRACTOR SHALL LEAVE THE ENTIRE ELECTRICAL SYSTEM INSTALLED BY HIM UNDER THIS CONTRACT IN PROPER WORKING ORDER AND SHALL REPLACE, WITHOUT ADDITIONAL CHARGE, ALL WORK OR MATERIAL WHICH MAY DEVELOP DEFECTS, ORDINARY WEAR AND TEAR OR DAMAGE RESULTING FROM IMPROPER HANDLING EXCEPTED, WITHIN A PERIOD OF ONE YEAR FROM THE DATE OF FINAL TESTING AND ACCEPTANCE BY THE ENGINEER. BALLASTS SHALL BE INCLUDED BUT LAMPS SHALL BE EXCLUDED.

EQUIPMENT: EQUIPMENT IDENTIFICATION SHALL BE MADE USING ENGRAVED LAMINATED PHENOLIC OR MICARTA PLATES (INDENTED TAPE LABELS WILL NOT BE PERMITTED). CHARACTERS SHALL BE WHITE ON A BLACK BACKGROUND AND 1/4" HIGH MINIMUM. PLATES SHALL BE SECURED TO THE PANELS BY MEANS OF SCREWS OR METAL PRESSURE PINS. CEMENT, BY ITSELF, WILL NOT ACCEPTABLE. ALL NAMEPLATES SHALL BE MOUNTED ON THE OUTSIDE SURFACE OF THE PIECE OF EQUIPMENT. INDIVIDUALLY ENCLOSED SAFETY SWITCHES, CIRCUIT BREAKERS, AND MOTOR STARTERS, PULL BOXES, CONTROL CABINETS AND OTHER SUCH ITEMS SHALL BE IDENTIFIED INDICATING LOAD, ELECTRICAL CHARACTERISTICS, AND SOURCE.

EACH JUNCTION BOX COVER SHALL BE LABELED WITH A PERMANENT "MAGIC" MARKER OR OTHER MEANS TO IDENTIFY THE CIRCUITS WITHIN. FOR EXAMPLE, A JUNCTION BOX CONTAINING LIGHTING CIRCUITS 21, 23, 25 FROM PANEL L2A WOULD BE LABELED "L2A-21,23,25". TELEPHONE JUNCTION BOXES SHALL BE LABELED "T". FIRE ALARM AND OTHER SYSTEM JUNCTION BOXES SHALL BE LABELED ACCORDINGLY.

CONDUITS BUSHINGS SHALL BE METALLIC WITH INSULATED THROATS.
INSULATING GROUNDING TYPE BUSHINGS SHALL BE PROVIDED WHERE
REQUIRED UNDER 'GROUNDING'.

ALL CONDUITS SHALL BE CONCEALED UNLESS OTHERWISE NOTED ON THE DRAWINGS. EXPOSED CONDUIT WILL BE PERMITTED ONLY AS SHOWN ON THE DRAWINGS. EXPOSED CONDUIT SHALL BE RUN PARALLEL WITH OR AT RIGHT ANGLES TO THE BUILDING WALLS. ALL EMPTY CONDUITS SHALL BE PROVIDED WITH A PLASTIC OR NYLON FISH WIRE.

FLEXIBLE CONDUIT IN ALL AREAS OTHER THAN CEILING PLENUM
 SUBJECT TO MOISTURE SHALL BE LIQUID-TIGHT FLEXIBLE CONDUIT.
 ALL ELECTRICAL CONNECTIONS TO VIBRATION ISOLATED EQUIPMENT
 SHALL BE MADE WITH FLEXIBLE CONDUIT. ALL CONDUITS ENTERING
 THE BUILDING SHALL BE SUITABLY SEALED TO PREVENT THE
 ENTRANCE OF MOISTURE. ANY WIRING IN A FINISHED AREA WHICH
 CANNOT BE CONCEALED IN CONDUIT SHALL BE INSTALLED IN A
 SURFACE METAL RACEWAY SYSTEM AS MANUFACTURED BY WIREMOLD
 OR EQUAL. UTILIZATION OF SURFACE METAL RACEWAY, IF NOT
 INDICATED AS SUCH ON THE PLANS, WILL BE ACCOMPLISHED ONLY
 WITH THE WRITTEN APPROVAL OF THE ENGINEER.

ALL CONDUCTORS SHALL BE COPPER OF NOT LESS THAN NINETY-EIGHT PERCENT (98%) CONDUCTIVITY, WITH NEC TYPE THHN/THWN, 600 VOLT INSULATION. CONDUCTORS NO. 12 THROUGH NO. 10 SHALL BE SOLID AND NO. 8 AND LARGER SHALL BE STRANDED. NO CONDUCTORS SMALLER THAN NO. 12 SHALL BE USED EXCEPT AS OTHERWISE NOTED. CONTROL CONDUCTORS MAY BE NO. 14.

THE MATERIALS SHALL BE COMPATIBLE WITH THE CONDUCTORS, INSULATIONS AND PROTECTIVE JACKETS OF THE RESPECTIVE CABLES AND WIRES.

ALL JUNCTION BOXES AND PULL BOXES SHALL BE SIZED PER N.E.C. REQUIREMENTS AND BE OF THE PROPER NEMA CLASSIFICATION FOR THE LOCATIONS WHERE THEY ARE INSTALLED. WHERE BOXES OCCUR ABOVE OTHER THAN LIFT-OUT CEILINGS, ACCESS PANELS MUST BE PROVIDED.

WHERE CONDUITS TERMINATE WITHOUT MECHANICAL CONNECTION (I.E. KNOCKOUTS AND BUSHINGS) TO PANELBOARDS, AND FOR ALL TERMINATIONS OF CONDUIT WITH #4 OR LARGER; AND FOR ALL SIZES OF METALLIC CONDUIT (RIGID OR FLEXIBLE) TERMINATING IN CONCENTRIC KNOCKOUTS, THE FOLLOWING PROCEDURE SHALL BE FOLLOWED: EACH CONDUIT SHALL BE PROVIDED WITH AN INSULATING GROUND BUSHING AND EACH BUSHING CONNECTED WITH A BARE COPPER CONDUCTOR TO THE GROUND BUS IN THE ELECTRICAL EQUIPMENT. THE GROUND CONDUCTOR SHALL BE IN ACCORDANCE WITH THE ARTICLE OF GROUNDING OF NEC.

TEST GROUNDING SYSTEMS AND CONFIRM RESISTANCE IS NOT GREATER THAN 10 OHMS.

WALL SWITCHES:
ALL SWITCHES SHALL BE FLUSH ENCLOSED TYPE, SPECIFICATION GRADE, RATED AT 20 AMPERES, 120/277 VOLTS, ALTERNATING CURRENT ONLY, AND QUIET OPERATION. COLOR OF ALL DEVICES SHALL BE IVORY.

RECEPTACLES:
GROUNDING TYPE DUPLEX RECEPTACLE, RATED 20 AMPERES, 125
VOLTS, 2 WIRE, 3 POLE WITH GROUNDED SHUNT (YOKE
PERMANENTLY GROUNDED TO THIRD CLIP).

OTHER RECEPTACLES LISTED ON THE DRAWINGS SHALL BE SPECIFICATION GRADE RECEPTACLES. ALL RECEPTACLES SHALL BE IVORY IN COLOR.

DEVICES PLATES:
ALL PLATES FOR SWITCH, RECEPTACLES AND TELEPHONE OUTLETS
LOCATED IN FINISHED WALLS SHALL BE SMOOTH THERMOPLASTIC.
COLOR TO MATCH DEVICE. ALL PLATES FOR OUTLETS LOCATED ON
UNFINISHED WALL OR ON CONDUIT TYPE FITTINGS SHALL BE ZINC
COATED SHEET METAL WITH ROUNDED OR BEVELED EDGES.

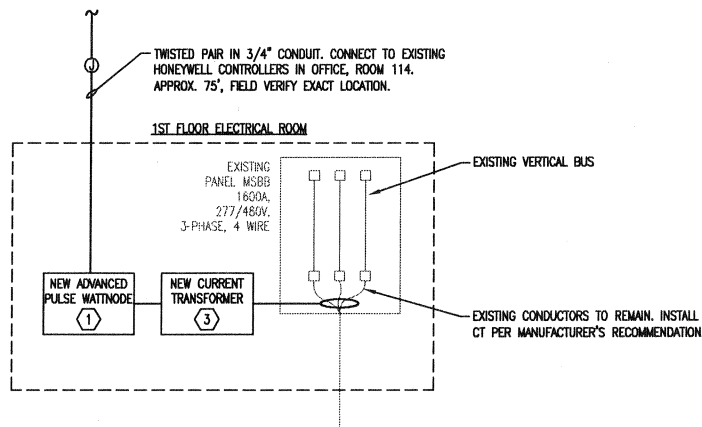
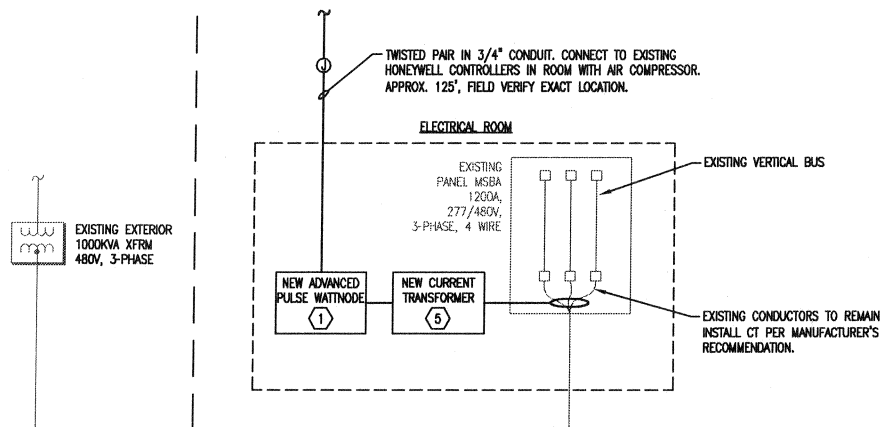
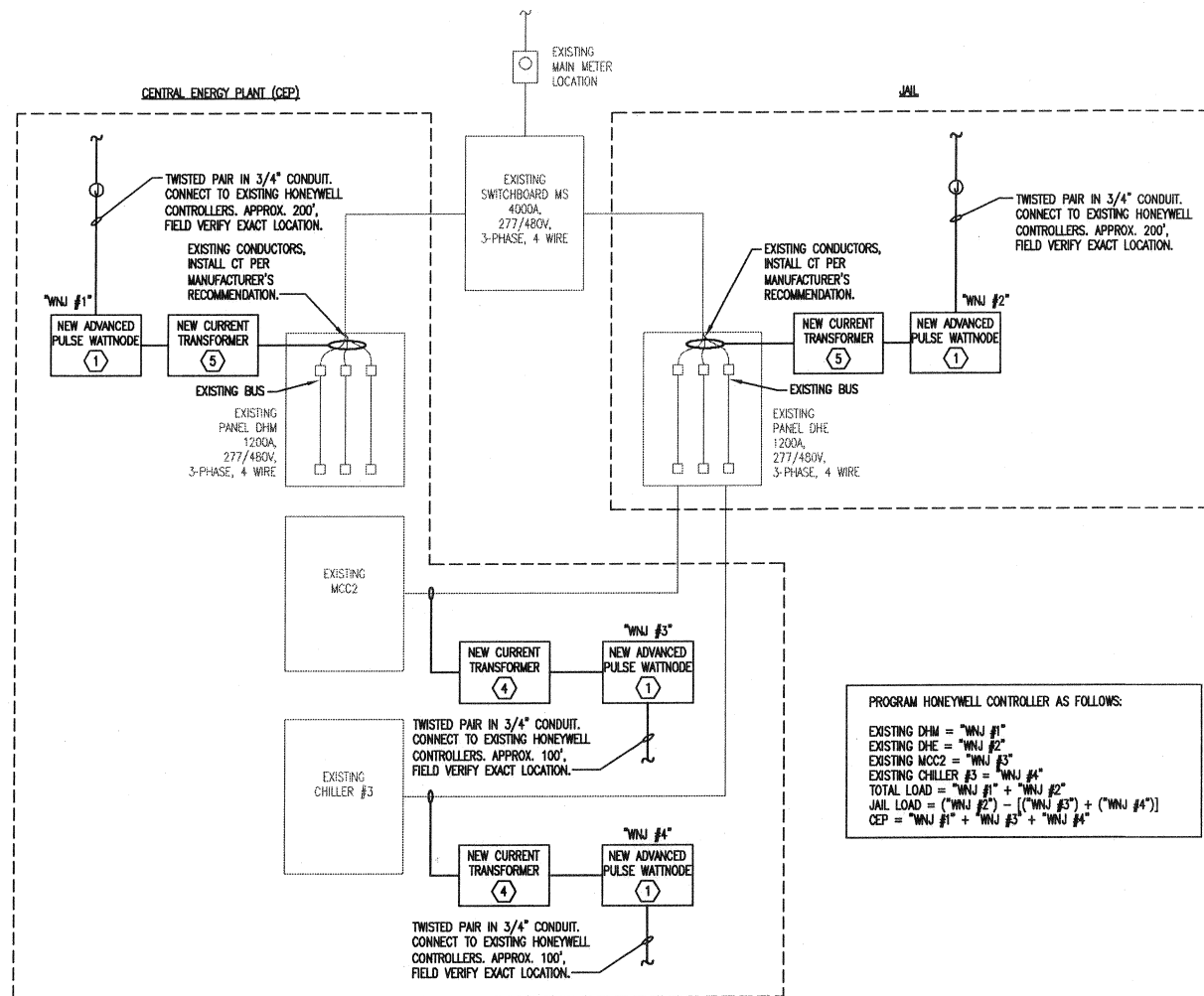
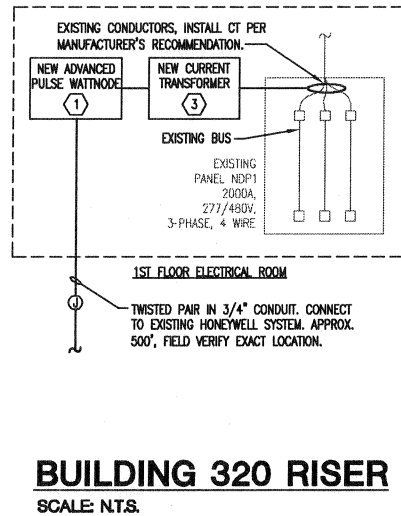
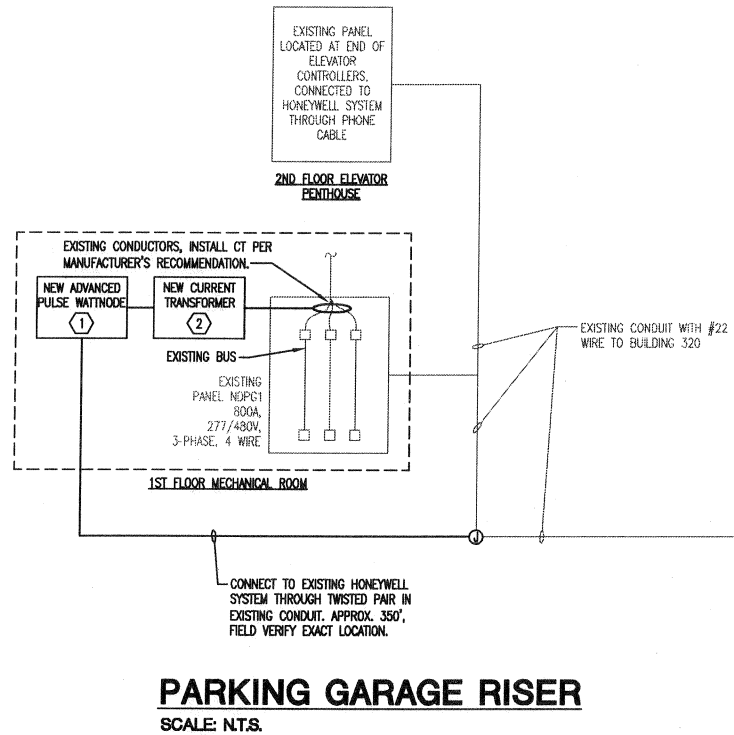
ACCEPTABLE MANUFACTURERS: HUBBELL, LEVITON, P&S.

Seal

2/8/12

Drawn By: DO
Approved By: MMH
Scale: N.T.S.

ELECTRICAL LEGEN GENERAL NOTES, AND SPECS.



GENERAL NOTES:

1. VERIFY ALL CURRENT TRANSFORMER DIMENSIONS WITH EXISTING CONDUCTOR SIZES FOR ALL PANELS TO BE METERED.
2. ALL CURRENT TRANSFORMERS SHALL HAVE A REMOVABLE SECTION SO THAT THEY CAN BE INSTALLED WITHOUT INTERRUPTING THE CIRCUIT.
3. PROVIDE NEW CONDUIT AND WIRE AS REQUIRED TO CONNECT NEW WATNODE METERS TO EXISTING HONEYWELL CONTROLLERS.
4. ALL PROGRAMMING AND GRAPHIC CHANGES REQUIRED TO INTERFACE NEW DATA POINT CONNECTIONS INTO EXISTING HONEYWELL SYSTEM TO BE DONE BY HONEYWELL AND INCLUDED IN THE CONTRACTOR'S PRICE.
HONEYWELL POINT OF CONTACT: LARRY ANDERSON • 407-897-7246 (OFFICE) OR 407-701-5787 (CELL).
5. HONEYWELL TO PROGRAM SYSTEM TO ACCOMPLISH THE FOLLOWING: ALL DATA (FROM 8 METERS) SHALL BE RECORDED AND ARCHIVED FOR A MINIMUM OF ONE (1) YEAR. A MONTHLY POWER CONSUMPTION REPORT SHALL BE PRINTED SHOWING DATA FOR ALL PANELS AND EQUIPMENT BEING MONITORED. ALL RECORDING AND PRINTING SHALL BE DONE FROM THE EXISTING HONEYWELL WORKSTATION LOCATED IN BUILDING 315 (COUNTY ADMINISTRATION BUILDING).

KEYED NOTES:

- ① CONTINENTAL CONTROL SYSTEMS LLC, ADVANCED PULSE WATNODE, MODEL #WNB-3Y-480-P, USE UNISTRUT TO MOUNT NEAR PANEL BEING METERED.
- ② CONTINENTAL CONTROL SYSTEMS LLC, CTS SERIES SPLIT CORE CURRENT TRANSFORMER, MODEL #CTS-2000-800.
- ③ CONTINENTAL CONTROL SYSTEMS LLC, CTB SERIES BUS BAR CURRENT TRANSFORMER, MODEL #CTB-4.0X4.0-2000.
- ④ CONTINENTAL CONTROL SYSTEMS LLC, CTS SERIES SPLIT CORE CURRENT TRANSFORMER, MODEL #CTS-2000-400.
- ⑤ CONTINENTAL CONTROL SYSTEMS LLC, CTS SERIES SPLIT CORE CURRENT TRANSFORMER, MODEL #CTS-2000-1200.

Revisions:		
No.	Date	Description

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M. Moncef Hadji, P.E.
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Drawn By: DO
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Drawing Title:
ELECTRICAL RISERS

Drawing No.: E1.0